Conduct of Operations Course

Lesson:

Related Directives

Time Required: 45 minutes

Reference:
(a) DOE 5480.19, Conduct of Operations Requirements for DOE Facilities
(b) DOE O 430.1, Life Cycle Asset Management (formerly 4330.4B)
(c) DOE 5700.6C, Quality Assurance
(d) DOE O 470.1, Safeguards and Security (formerly 5630.11)
(e) 10CFR830, Nuclear Safety Management
(f) Price-Anderson Amendment Act

Objectives: Upon completion of this lesson:

(VG-14-1)

1. Refer to DOE 0 430.1, Life Cycle Asset Management, and 5700.6C, Quality Assurance, and explain how each contributes to a proper CONOPS environment. (1.f)
2. Describe the purpose of Safeguards and Security, and the role it plays with regards to CONOPS. (1.g)
3. Discuss 10CFR830 and its relationship to the Price-Anderson Act. (2.k)

Instructional Aids/Materials:

1. Overhead projector, projection screen and viewgraphs
2. Instructor Guide and Student Workbooks

Presentation Method: Lecture, Class Discussion

Instructor Notes:

1. Instructors should read the contents of this instructor guide and the student workbook, and review applicable portions of the listed references (as needed) when preparing for the lecture. Instructors are free to personalize, however, the key points made in the instructor guide must be covered.

2. The student guide is designed to promote note taking. There are many items in the student guides which do not have the corresponding information filled in, particularly, areas where guidelines are reviewed. The instructor should cover the corresponding information during the lecture and encourage students to take sufficient notes.

3. The italicized words are for instructors only and do not appear in the student workbook.

4. **VG** indicates that there is a viewgraph associated with the information and it should be displayed on the overhead projector.

(VG-14-2)

I. DOE O 430.1, Life Cycle Asset Management: Maintenance has a primary role in preserving DOE property and ensuring safe and reliable operation of facilities. Maintenance involves the effort to preserve, protect, and/or sustain equipment in an acceptable condition so that it may be used for its intended or designated purpose. DOE O 430.1 establishes 32 key elements for controlling the conduct of maintenance activities including proactive methods of;

- *Inspection,*
- *Preventive and predictive maintenance,*
- *Surveillance and testing, and*
- *Forecasting/trending.*

- The 32 key elements correspond to, and support similar conduct of operations requirements. Maintenance work is formally controlled to provide the necessary interface with proper conduct of operations. Examples of this interface include:

  - *Scheduling maintenance work on the Plan of the Day.*
  - *Establishing the proper lockout/tagout.*
  - *Obtaining shift manager approval to commence maintenance work.*
  - *Updating system status to reflect the activity and unavailability of the equipment.*
  - *Training and qualifying the maintenance force.*
  - *Performing post-maintenance testing to restore equipment to operational service.*
  - *Performing root cause analysis to aid in prevention of similar or related failures*.

- Preventive maintenance serves to identify and correct potential problems to abate operational impact by unexpected events.

(VG-14-3)

- A robust maintenance program contributes to proper conduct of operations though a complimentary program of equipment surveillance and coordinated interface with operational management.

(VG-14-4)

II. DOE 5700.6C, Quality Assurance: This order provides the guidelines for establishing an effective quality assurance program (QAP). DOE 5700.6C identifies 10 criteria that reflect attributes of an effective QAP. Those attributes which correspond to, and support similar attributes of an effective conduct of operations program, are as follows:

- Management

  Program:
  A formal program description of organizational structure, interfaces, performing and assessing work, levels of authority, functional responsibilities, management planning, scheduling, and cost control considerations will be promulgated.

  Personnel Training and Qualification:
  Training and personnel development shall occur to ensure capable, proficient performance of work.

  Quality Improvement:
  Processes shall be developed to detect and prevent problems and ensure quality improvement. Process problems will be identified, controlled and corrected. Problem causes will be identified and analyzed to prevent recurrence.

  Documents and Records:

Process requirements will be formally prescribed and documented.

(VG-14-5)

- Performance

  Work Processes:
  Work shall be performed to established technical standards and administrative controls, under controlled conditions using approved instructions, procedures or other appropriate means. Items shall be identified and controlled to ensure their proper use, and maintained to prevent damage, loss or deterioration. Equipment used for process monitoring or data collection shall be calibrated and maintained.

  Design:
  Items will be designed using sound engineering/scientific principles and appropriate standards incorporating applicable requirements and design bases. Design interfaces will be identified and controlled. Adequacy of the design will be determined by entities other than those who performed the design. Validation will occur prior to design implementation.

  Procurement & Inspection and Acceptance Testing:
  Suppliers will be qualified to provide items that meet established requirements. Items will be tested according to established acceptance criteria.

- Assessment

  Management Assessment & Independent Assessment:
  Management at all levels will periodically assess the program and correct identified problems. Planned and periodic independent assessments will be used to measure process effectiveness and to promote improvement.

(VG-14-6)

The QAP contributes to the conduct of operations through a complimentary management system focused to maximize process safety, reliability, and performance. The systematic use of standards and performance assessment serves to create a formal work environment. This formal, process related environment compliments and enhances the formality associated with proper facility-wide conduct of operations.

(VG-14-7)

III. DOE O 470.1, Safeguards and Security: The purpose of the Safeguards and Security program is to account for and protect Special Nuclear Materials (SNM), classified data, and other government property from damage, theft, or loss. The program identifies 5 key elements of:

1) *Program planning*
2) *Protection program operations*
3) *Material control and accountability*
4) *Operations, Information, and Personnel security*
5) *Facility approvals and surveys*

- The safeguards and security and conduct of operations programs complement each other in the following ways:
    - Conduct of operations aids safeguard and security by providing a rigorous and formal operating environment that facilitates tracking and reporting of events that fall into the safeguards and security arena.
    - Safeguards and security contributes to the conduct of operations by providing multiple levels of protection against terrorist attack or sabotage. Terrorist attack and/or sabotage often intend to compromise the safety systems of a facility to endanger the health and safety of facility personnel, the public, and/or the environment.

(VG-14-8)

IV. 10CFR830 and Relation to Price Anderson Amendment Act: The Price Anderson Amendment Act (PAAA) of 1988 provides incentives for DOE contractors to abide by nuclear facility safety and operations requirements as set forth by DOE in such documents as 10CFR830.

- **Price Anderson Amendment Act:**
  The PAAA provides a reimbursement incentive to DOE contractors (and their subcontractors and suppliers) for conducting activities that involve source, special nuclear, or byproduct material in response to public liability penalties associated with the consequences of those activities. The PAAA also made DOE contractors (and their subcontractors and suppliers) subject to civil penalties for violations of DOE rules, and regulations, or orders related to nuclear safety.

- **10CFR830:**
  10CFR830 is part of the DOE's effort to review and improve all aspects of DOE operations and facility safety resulting from: concerns about facility aging; specific operational occurrences; the degree of formality with which DOE operations have been conducted; and the degree of rigor and consistency with which DOE Orders have been implemented.

(VG-14-9)

- 10CFR830 presents regulations regarding the safe management of DOE nuclear facilities. The rules (sections of 10CFR830) contain specific requirements for:

    - Safety Analysis Reports
    - Unreviewed Safety Questions
    - Conduct of Operations
    - Technical Safety Requirements
    - Training and Qualification
    - Maintenance Management, and
    - Occurrence Reporting and Processing of Operations Information.

(VG-14-10)

- The 10CFR830 regulatory requirements are intended to revise and supplement the existing provisions in DOE Orders for nuclear safety and will provide a more direct means to implement the civil penalty provisions of the PAAA. Order provisions will eventually be replaced by regulatory requirements.

- 10CFR830 also provides a structured means for measuring the adequacy of the implementation of nuclear safety requirements and compliance.

- The rules clearly express expectations of DOE contractors and eliminate ambiguous or overly prescriptive requirements contained in some DOE Orders. Rule clarity facilitates contractor implementation and compliance efforts, as well as oversight and enforcement efforts by DOE.

- Compliance will be measured against specific regulatory requirements and against provisions of plans, programs, or procedures adopted pursuant to these requirements and approved by DOE.

- The incentives of the PAAA will enhance compliance with the 10CFR830 rules including the Conduct of Operations and related programs that contribute to an effective conduct of operations environment at nuclear facilities.

NOTES